

VII. WATER SUPPLY ADEQUACY

The Water Resources Branch of the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water developed a program to evaluate water systems. Water systems are grouped into three classes of susceptibility to water shortages during drought conditions. Systems are classified by comparing average withdrawal rates to water availability at the point of withdrawal during drought conditions. The drought susceptibility classes are:

- A. Systems unlikely to experience water shortage during drought conditions.
- B. Systems that should be examined for susceptibility to water shortage during drought. Plans need to be made for response to possible shortage.
- C. Systems that are likely to have water shortage during drought conditions. Plans for response to shortage are necessary.

The determination of drought susceptibility class depends on the source of supply. Water systems that rely on unregulated streams are classified by comparing average withdrawal rates to the 7Q10.

Drought susceptibility, unregulated streams

Percentage of 7Q10 used	Drought classification
< 10	A
10 - 50	B
> 50	C

Water systems that rely on regulated streams use:

Drought susceptibility, regulated streams

Percentage of 7Q10 used	Drought Classification
< 20	A
20 - 65	B
> 65	C

Water systems that rely on reservoirs were divided into two categories: those with 7Q10 inflow of zero, and those with 7Q10 greater than zero. Those with zero inflow are classified using:

Drought susceptibility, reservoirs with zero inflow

Days stored	Watershed size in square miles			
	> 10	> 5 - 10	1 - 5	< 1
> 350	A	A	B	C
201 - 350	A	B	B	C
100 - 200	B	B	C	C
< 100	C	C	C	C

Those with inflow during a drought are classified by:

Drought susceptibility, reservoirs with inflow

Days stored	Percent of 7Q10 used			
	< 15	15 - 50	> 50 - 75	> 75 -100
> 200	A	A	A	B
91- 200	A	A	B	B
51- 90	A	B	B	B
30- 50	B	B	B	C
< 30	B	B	C	C

Classes are determined for ground-water supplies according to historical records of yields.

Summary of Water Systems in the Region

The ability of each system to meet demands, either currently or over the projected planning period, was evaluated by determining the drought susceptibility. Water supplies for the Hazard Water Department, Jenkins Water Works, Whitesburg Municipal Water, and the Hyden-Leslie County Water District were considered inadequate for current or future needs. It was hoped that flooded deep mines in their areas would provide the needed additional water. Water supplies for Booneville Water & Sewer were also considered inadequate for current and future needs. Booneville

was considering a new intake in Kentucky River Pool 14 as the most feasible source of reliable water.

Drought susceptibility of water systems

Water supplies for Jackson Municipal Water Works, Hindman Municipal Water Works, Campton Municipal Water, and Beattyville Water Works were considered adequate for current and future needs. Water supplies for the Fleming-Neon Water System are adequate for current needs. The system may not be able to meet peak demands during a drought by the year 2000, however, and by the year 2010 may not meet average demands during a drought.

Water Supplier	Drought Susceptibility Class
Jenkins Water Works	C
Whitesburg Municipal Water	B
Fleming-Neon Water Company	A-B
Hindman Municipal Water Works	A
Hazard Water Department	C
Jackson Municipal Water Works	A
Hyden-Leslie Water District	C
Beattyville Water Works	A
Campton Municipal Water	A
Booneville Water & Sewer System	B-C